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ABSTRACT

This booklet contains four addresses: (1) "Toward the Year 2000: Teacher Education" by William Van Til, Coffman Distinguished Professor in Education, Indiana State University. It includes projections regarding American society, American education, and teacher education for the next third century. (This address is available separately as ED 028 972.) (2) "New Developments in Teacher Education" by George W. Denemark, dean, College of Education, University of Kentucky. It focuses on the inadequacy of the isolated teacher concept, the importance of blending theory and practice, and research and development needs in teacher education. (3) "New Developments in Teacher Education" by Howard F. Helm, director, Division of Educational Laboratories, Bureau of Research, U.S. Office of Education. He describes U.S. Office of Education programs, particularly the development of comprehensive preservice-inservice model teacher education programs at the preschool and elementary level. (4) "Suggested Research To Improve Teacher Education" by David R. Krathwohl, dean, School of Education, Syracuse University. He explores four questions: What is the appropriate liberal arts base for teacher education? How can we improve our presentations in teaching for cognitive objectives? How can we better sequence the learning of teaching skills? How do we heighten the beneficial effect of student teaching? (JS)

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TEACHER EDUCATION FOR THE FUTURE

New Directions and New Developments

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MAJOR PAPERS OF THE 1968 ANNUAL MEETING

The Second in the Series

WILLIAM VAN TIL
GEORGE W. DENEMARK
HOWARD F. HELM
DAVID R. KRATHWOHL

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TEACHER EDUCATION FOR THE FUTURE

New Directions and New Developments

Editor

HOWARD E. TEMPERO

NATIONAL SOCIETY OF
COLLEGE TEACHERS OF EDUCATION
1968

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FOREWORD

Ernest E. Bayles

President, National Society of College Teachers of Education

During the two-thirds century of its existence, the National Society of College Teachers of Education has played a leading role in looking ahead, continually seeking to discover or invent, and to promote improved ways of teaching and of educating teachers. Moreover, it has sought to represent teacher-education as a whole; to keep before professors of education the school-keeping enterprise in its entirety, so that each part will mesh into and be coordinate with all other parts. Publication in 1932 of *The Educational Frontier*, a Society yearbook, was, I think, an outstanding example of educational statesmanship in attempting to carry out this two-fold purpose.

The present monograph, presenting the addresses given at the general sessions of the Society during its 1968 meeting epitomizes our present purpose of continuing the search for, and promotion of, better ways of doing our job. The presidential address of Dr. Van Til is a bold attempt at envisioning a third of a century ahead. Deans Denemark and Krathwohl outline research that pertains to various aspects of teacher-education. And Dr. Helm tells what the U.S. Office of Education is doing to promote forward-looking practices. All in all, the 1968 meeting of the N.S.C.T.E. carried out well the theme, "Teacher Education for the Future: New Directions and New Developments."

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TOWARD THE YEAR 2000: TEACHER EDUCATION

WILLIAM VAN TIL*

INTRODUCTION

Toward the Year 2000: *Teacher Education* began when two developments coincided. First, *Daedalus*, the journal of the American Academy of Arts and Sciences, published a Summer 1967 issue on *Toward the Year* 2000: *Work in Progress*. The volume is an account of working sessions and a collection of essays on specific problems by a distinguished group of scholars. I read the deliberations avidly and appreciatively, though the field of teacher education, I found, was not on the agenda of the Commission in the year 2000.

Second, the National Society of College Teachers of Education invited me to deliver the presidential address in Chicago in February, 1968, and the Association for Supervision and Curriculum Development invited me to address the assembly on teacher education in Atlantic City in March, 1968. Each group allowed me to choose my own topic. So, I decided to assign myself the topic *Toward the Year* 2000: *Teacher Education*. Since then, I have had many misgivings about such an enterprise. My misgivings were only partially ameliorated by the practical recognition that not everybody in my audience will be up and about during the year 2000 to check on the validity of my speculations.

I have not attempted to construct a Utopia. I have chosen to speculate as realistically as I can on what might be the possible shapes of things to come in society, in education, and finally, in teacher education in particular. In this address to you, I have cut the documentation which was contained in 78 supporting footnotes to this manuscript. I have also ruthlessly reduced much supporting evidence contained in the body of this paper. The scope of this topic is vast, and my time is 50 minutes.[1]

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*WILLIAM VAN TIL *is Coffman Distinguished Professor in Education, Indiana State University, Terre Haute, Indiana.*

1. This manuscript is being published by the National Society of College Teachers of Education in abbreviated form reflecting faithfully the Presidential Address delivered to NSCTE on February 15, 1968. Following the address, presidents and presidents-elect of the John Dewey Society, the History of Education Society, the Philosophy of Educa-

If there is any value in this exploration for my listeners, it may be in encouraging future-oriented dialogue, and in opening discussion to the end that each of us may participate still further in influencing whatever future lies ahead.

ON SPECULATING ON THE FUTURE

Some may say, "But the year 2000 is far away!" Is it, really? The year 2000 is as far in the future as the year 1936 is in the past. From 1968, the year 2000 is thirty-two years away; so is the year 1936

Historians will point out parallels between 1936 after the initiation of Franklin D. Roosevelt's New Deal program and 1968 after the initiation of Lyndon B. Johnson's Great Society program. But they will also point out some major "system breaks," to use Kenneth E. Boulding's phrase,[2] meaning sudden changes in the characteristics of systems. Such discontinuities, sometimes termed "turning points" or "surprises," develop because of powerful social forces, unpredictable or only partially predictable in advance.

The Role of System Breaks

For the 1936-68 period, major system breaks included such events as World War II, 1939-1945; the first atomic bombs dropped on Japan, 1945; the outer space pioneering dating from the Soviet Union's Sputnik, 1957; and United States participation in Asiatic land wars during the 1950's and 1960's.

If we look for parallels and continuities between 1936 and 1968, we can find them. If we look for system breaks and discontinuities between 1936 and 1968 we can also find them.

What is the shape of things to come in the year 2000, thirty-two years away? Can we envision at all the tomorrow of 2000 from the viewpoint of 1968? Or will major system breaks with respect to war or technology or biology or international development so change

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tion Society and the Comparative Education Society discussed the address; representatives of education and industry played the same role for the address to the assembly on teacher education at the Association for Supervision and Curriculum Development Conference, March 12, 1968. Suggestions by these discussants and by other readers have been taken into account in the expanded complete manuscript published by Indiana State University, 1968, under the title *The Year 2000: Teacher Education.* (The reader of this speech is invited to read, in addition, the entire manuscript, with supporting footnotes, published by Indiana State University.)

2. Kenneth E. Boulding, "Expecting the Unexpected: The Uncertain Future of Knowledge and Technology," *Prospective Changes in Society by* 1980, ed. Edgar L. Morphet and Charles Ryan (Denver: Designing Education for the Future, July, 1966), p. 203.

the current scene that a contemporary Rip Van Winkle falling asleep in 1968 would, like Rip, wake to a totally unimaginable and incomprehensible environment in the year 2000?

World War or Famine as System Breaks. Before venturing any extrapolations of data and trends, we will formulate and invoke Rip Van Winkle's law, "All bets are off if such major system breaks as world war or world famine occur." In a time when the grinning horror of a nuclear war marked by incalculable devastation or a population growth culminating in famine must be regarded as a nightmare possibility, Rip Van Winkle's law must more than ever be respected.

Technological Developments as System Breaks. But what about the role of technological developments in making the year 2000 unimaginable and incomprehensible from the viewpoint of 1968? How about the possibility of the wizardry and marvels of gimmicks and gadgets in a time of accelerating technology transforming the recognizability of the year 2000?

Today some scholars are speculating on system breaks which may grow out of technological developments. One possible system break relates to the encompassing social implications of the growth of computer technology. Economist Kenneth E. Boulding speculates, "The crucial problem here is whether the development of electronics, automation, cybernation, and the whole complex of control systems does not introduce as it were a new gear into the evolutionary process, the implications of which are as yet only barely apparent. The computer is an extension of the human mind in the way that a tool or even an automobile is an extension of the human body. The automobile left practically no human institution unchanged as a result of the increase in human mobility which it permitted. The impact of the computer is likely to be just as great, and indeed of the whole world electronic network . . ."[3]

William T. Knox of the Office of Science and Technology, Executive Office of the President, predicts flatly and positively, *"The impact on U. S. society of this (computer systems) development will exceed the impact of the automobile."*[4]

Biological Developments as System Breaks. Another possible "system break" grows out of developments in biology. Some observ-

3. *Ibid.*, p. 209.
4. William T. Knox, "The New Look in Information Systems," *Prospective . . .* 1980, p. 223.

ers believe that we are leaving a century in which physics was queen of the sciences and entering a new era.

The biological transformation of man via genetics, DNA developments, chemicals and drugs is on the threshold.

International Developments as System Breaks. Still another foreseeable system break relates to the international scene. In the broadest terms, the problem is the extent to which the world will be nationally or globally oriented during the next thirty-two years. In the narrower sense, the question is the extent to which the United States will follow the course of enhancing the immediate twentieth-century consumption of its citizenry as contrasted to the course of supporting the development of human and material resources abroad among underdeveloped peoples because of some combination of humanitarian and long-range survival considerations. If one extrapolated some current trends, the result would be ambivalent. Simultaneously, the United States is the long-range and altruistic nation of the Marshall Plan, the Agency for International Development, and the Peace Corps. It is also an immediate-consumption-oriented nation which reduces appropriations for foreign aid and which responds inadequately as the economic gap between the developed and underdeveloped lands grows wider an wider while the rich get richer and the poor get children. A world famine in the era of the population explosion might be the precipitator of a system break toward the global view. A system break might also be brought about by aggressive threats by coalitions of nations, newly industrialized and reaching for power.

The Expected and the Unexpected. Thus, anyone who attempts to envisage the shape of things to come in 2000 for the sake of considering alternative futures in his own field of inquiry (in this case teacher education), and possibly helping to shape directions in his field of inquiry, must face a paradox. The paradox is that he must report as though assuming that there will occur no major system breaks or surprises. Yet, at the same time, his historical sense tells him that system breaks or surprises (and not necessarily those mentioned above) are likely to occur and may be unpredictable. Perhaps the only thing of which the prophet can be sure is that his predictions are bound to be wrong, in large or in small part, if not totally. He must recognize, with Boyd H. Bode, that the gods give no guarantees.

Yet, despite the inevitability of surprises in the pattern of change, men must try to see where they seem to be going. They must attempt to see what now seem to be reasonable possibilities, so that they can have some possible participation in influencing the future, in tempering trends with their values, in considering realistic alternatives, in short, in planning ahead. Educators who are committed to the improvement of the educational process and product must necessarily attempt to plan for educational change and participate in its direction and control as best they can.

So let us plunge into a description of the probable United States in the year 2000 (assuming current trends and substantial system changes, yet excluding system breaks) as the U. S. is envisaged by the scholar-prophets who are willing to speculate on possibilities or alternatives. Later, we will identify factors in this projection of the year 2000 which will influence education in 2000. Finally, we will attempt to describe the possible resultant nature of teacher education and the value choices as to alternative futures which may be before teacher education in the year 2000.

AMERICAN SOCIETY IN THE YEAR 2000

Some Projections

The prophets assume that in the year 2000 the United States will still exist both as a nation and as a major world power. The states of the Union (by then possibly fifty-two in number, including the states of Puerto Rico and the Virgin Islands) will be more heavily populated than the United States of 1968.

Population Projections. My listeners will recall that the Bureau of Census machine in Washington, D.C., which tolls off the population, recorded 200 million Americans on November 20, 1967. In a recent projection by the Bureau of Census, the total population for the United States is calculated as 241 million in 1980.[5] Philip M. Hauser of the University of Chicago, whose name is synonymous with population authority, writes with Martin Taitel, "The population of the United States . . . is being projected to exceed 300 million by the turn of the century."[6] He adds, "The projections utilize conservative assumptions about the future."[7]

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5. Philip M. Hauser and Martin Taitel, "Population Trends—Prologue to Educational Problems," *Prospective . . . 1980*, p. 25.
6. *Ibid.*, p. 24.
7. *Ibid.*, p. 54.

Urbanism and Metropolitanism. Most of the anticipated Americans of 2000 and the Americans already born will live in urban territory.

Harvey S. Perloff says, "At present about 140 million Americans, out of a total of 200 million, are classed as urban dwellers. By 2000 at least 280 million, out of a total population of about 340 million, are expected to be living in urban areas."[8]

Not only will the future America be urban, it will also be metropolitan. Americans will reside largely in what the Bureau of the Census now terms Standard Metropolitan Statistical Areas.

By 2000, some predict the agglomeration of many metropolitan areas into three megalopolises. Herman Kahn, formerly of Rand Corporation and now Director of Hudson Institute, and his colleague Anthony J. Wiener report, "We have labeled these—only half frivolously—'Boswash,' 'Chipitts,' and 'Sansan.' *Boswash* identifies the megalopolis that will extend from Washington to Boston and contain almost one quarter of the American population (something under 80 million people). *Chipitts,* concentrated around the Great Lakes, may stretch from Chicago to Pittsburgh and north to Canada—thereby including Detroit, Toledo, Cleveland, Akron, Buffalo, and Rochester. This megalopolis seems likely to contain more than one eighth of the U. S. population (perhaps 40 million people or more.) *Sansan,* a Pacific megalopolis that will presumably stretch from Santa Barbara (or even San Francisco) to San Diego, should contain more than one sixteenth of the population (perhaps 20 million people or more)."[9]

The Gross National Product. The residents of the United States in the year 2000 are expected to have a substantially higher Gross National Product and GNP per capita. Kahn and Wiener say, "The surprise-free United States economic scenario calls for a $1 trillion economy in 1975, $1.5 trillion in 1985, and about $3 trillion in year 2000. . . . Considering a year 2000 population of 318 million, per capita GNP would be slightly more than double the 1965 amount under the assumption of the low rate of productivity increase, and, under the high rate of increase, would be about 3.5 times the 1965 figure."[10]

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8. Harvey S. Perloff, "Modernizing Urban Development," *Daedalus* XCVI, p. 789.
9. Herman Kahn and Anthony J. Wiener, "The Next Thirty-three Years: A Framework for Speculation," *Daedalus* XCVI, pp. 718-719.
10. Herman Kahn and Anthony J. Wiener, *The Year 2000: A Framework for Speculation on the Next Thirty-three Years* (New York: Macmillan Co., 1967), pp. 167-68.

Technological Developments. In a United States which is more heavily populated, more densely urbanized, and more wealthy, some recent social trends may be expected at least to continue and probably to accelerate. For instance, scientific knowledge and technological development are expected to expand further. As an illustration, nuclear power plants should be producing much of our power in 2000. The computer should be a remarkably influential force by the year 2000.

The National Society and Creative Federalism. The nation may be expected to become increasingly "a national society," as Daniel Bell phrases it, characterized by more use of instrumentalities such as government, mass media, and modern transportation.[11] Yet this "national society" may not necessarily see governmental power concentrated in a highly centralized national government. Some foresee a "creative federalism." Organizations may be expected to flourish.

The Roles of Work and Leisure. In the economic realm, the trend in the American democracy which was early reported by the French observer Alexis de Tocqueville, is anticipated to continue—what the few have today, the many will demand tomorrow.[12] So, despite probable continuing inequalities, goods and services will probably be diffused throughout the general population.

With the problem of production largely solved through the persistence of the historical American combination of facilities, geographic location, substantial resources base, and an innovating technology, the question of the work distribution among the population may become critical. Current trends indicate that the population may increasingly be characterized by what some term the masses and an elite, or if you prefer, the common man and a leadership group. Many Americans may work about a thirty to thirty-two hour week.[13] The sabbatical, once the exclusive fringe benefit of professors, may be extended to labor, along with long vacations and opportunities for early retirement. Other workers may do only nominal or occasional work, resting content with their relatively low level of societal provision for maintenance. But a vital group of Americans should be needed to man the specialized key positions which they hold by virtue of varied types of intellectual mastery.

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11. Daniel Bell, *Daedalus* XCVI, p. 643.
12. *Ibid.*
13. Kahn and Wiener, *The Year 2000* . . ., p. 175.

These key men may be expected to overwork themselves because of a variety of drives, including prestige, status, differential income, and desire for accomplishment.

The Knowledge Explosion. The knowledge explosion may be anticipated to continue its convulsive leaps. But since time is not expansible and since human beings are limited in the amount they can retain, more and more emphasis will probably be placed on storage and retrieval facilities and on computers to reduce the intellectual version of manual labor. The mastery of knowledge sources may well become an imperative educational goal for the individual who aspires to leadership and social regard.

Goals and Directions. More questionable as to predictability are a nation's norms. Yet likely, if present trends are extrapolated, is a further shift in American orientation away from Max Weber's "Protestant ethic" of hard work, thrift, and spare living and toward leisure-oriented, free-spending, and hedonistic living.

It seems likely that the democratic way of life will continue to be the official ideology of the country and that the basic documents of democracy will probably continue to be venerated by the citizens and reinterpreted by the philosophers. Of the Jeffersonian trilogy, "life, liberty, and the pursuit of happiness," it seems quite possible that the latter may come into its own as never before. "Life" having been cushioned economically, and protected and extended medically, may increasingly be taken for granted. "Liberty" should still be a heated focus of struggle, particularly on the part of the sensitive who reject massive invasions of privacy by governmental fact banks and law enforcement agencies and who resist impersonal controls of extended bureaucracies. But "the pursuit of happiness" may well be the aspect of the official democratic ideology which will engage the energies of most Americans and which will perturb the reflective.

Discussion may be rife among intellectuals as to how man and woman should best pursue happiness in a society of multiple options.

Utopia will not have arrived by 2000. Americans of the year 2000 may well have their particular social problems, even as Americans of 1968 now have theirs—Vietnam war, Negro-white relations, persisting slums and ghettos, the urban jungle, alienated youth, etc.

The Persistence of Problems. Problems that lend themselves

to technological solutions seem easier for Americans to cope with than problems which have largely social answers. So one might anticipate that some problems now looming large for the last third of the twentieth century may well yield to the ingenuity of technology by the year of 2000. Illustrations that leap to mind are air and water pollution, with the attendant problem of waste disposal. But possibly more difficult for the year 2000 may be the struggle against social problems which eventually come home to roost. Such problems could include organized crime, environment, housing, governmental structures, and operation of voluntary associations.

Crime. By organized crime, we mean the planned lawlessness of criminal syndicates rather than "crime in the streets," today's euphemism for Negro rioting and violence. (Are we naive in expecting that by the year 2000, America will have resolved its major Negro-white problems through a major social drive on this obvious difficulty? How long, O Lord, how long? Are half-measures more likely?)

Environment. The year 2000 may be an era when Americans struggle for a better quality of the natural environment.

Housing. In relationship to the natural environment, housing may prove a continuous problem. Possibly, after many blighted areas in central cities are rebuilt with high-rise apartments, or cleared for urban recreation, the suburban rings may have become obsolescent and be candidates for reconstruction. Or areas of metropolises may have become 'slurbs'—a partially urbanized area in which the countryside has been effectively destroyed.

Governmental Structures. Perhaps it will have taken the development of the megalopolises of Boswash, Chipitts, and Sansan predicted by Kahn and Wiener to drive home the absurdity and obsolescence of our governmental structures in metropolitan areas.

We refer to the multiple local governments which proliferate in the suburbs which ring the metropolises in a nation of 56,508 local governments, not counting school districts.[14] Perhaps the culmination of the Negro Revolution for equality, anticipated here as a major and successful drive of the last third of the twentieth century, will provide the crucial element in achieving consolidation in metropolitan areas and the breaking down of city-suburban isolation, rather than the continuance of the current 1968 pattern of central

14. Hauser and Taitel, *Prospective . . . 1980*, p. 24.

cities which are increasingly Negro and suburbs which are almost all white.

Associations. The role of voluntary associations and internal and external controls of such associations may be among the crucial problems of the year 2000.

Summary on Society. To this point we have reviewed four major "system breaks" or "surprises" and forewarned of their possible havoc to extrapolation prophecies—the catastrophe of the occurrence of war or famine, the computer having become as influential as the automobile, the biological transformation of man, and the development of highly accelerated international support by the developed nations with substantial gap reduction between have and have-nots. We have also reviewed the data predictions of the scholar-prophets, hedged against "surprises"—expanded population, increased urban territory and metropolitan areas, higher Gross National Product and GNP per capita. We have reviewed trends predicted by the scholar-prophets—expansion of scientific knowledge and technological development, the national society marked by creative federalism and voluntary associations, diffusion of goods and services, less working time required of the common man and much expected of an intellectual leadership group, new communication tools to cope with the knowledge explosion, and a leisure-oriented pursuit of happiness. We have predicted the persistence of social problems, such as crime, environment, obsolescence in housing, governmental structures, and roles of associations and members.

AMERICAN EDUCATION IN THE YEAR 2000

Breaks and Trends

In the light of the above, what might education in the year 2000 be like? The question brings us again to the problem of "system breaks." In the event of major war, education becomes a zeal-for-our-side operation, a war support apparatus; in atomic catastrophe, what is left becomes a giant subsistence housing barracks. In the event of overwhelming impact of computer technology, the school becomes a clean factory in which workers quietly use machines. In the event of biological transformation, schools have a different population to educate. In the event of global emphasis, schools become oriented to vicarious and actual travel abroad and

an American appropriation for education widely shared with the underdeveloped world. But if such system breaks do not occur, the following is likely.

The Educational Population. As to the population to be educated, elementary education should be quite manageable. By 1968 we have already achieved, in effect, elementary education for all of the children of all of the people. In the years to 2000, the numerical task for elementary schools will only be to absorb the population increase.

For secondary education, by 1968 we had reduced the dropout rate with respect to high school graduation to less than one in three persons. Then to 2000 the increase will represent simply population increases plus completion of secondary education for those who formerly dropped out.

The greatest increase in enrollment percentages between 1968 and 2000 is expected to come on the college and university levels. Past increments include 61 percent in the decade of the 50's and 60 percent in the first half of the 1960's. A 61 percent increase is expected from 1965 to 1980.[15] The period from 1980 to 2000 should be marked by still more growth in college and university attendance, though the volume is not easily predictable. In addition, adult education may expand markedly.

As to urbanization and metropolitanism, the typical student of year 2000 will be among the 280 million of 340 million living in urban areas.[16] The very large majority will be living in metropolitan areas described by Hauser and Taitel.[17] Almost half may live in the Boswash, Chipitts and Sansan described by Kahn.[18] So schools will be very largely located in urban settings, except for some universities consciously located by their founders on open land temporarily away from the enveloping grasp of urbanism.

Support for Education. The American student of the year 2000 will be living in a nation which, barring "surprises," can afford to support education out of its GNP. For education will go on in a nation in which Kahn and Wiener soothsay as their "Standard Society" projection, a low per capita GNP in 1965 dollars of $6,850 and a high per capita GNP of $11,550.[19]

15. *Ibid.*, p. 53.
16. Perloff, *Daedalus* XCVI, p. 789.
17. Hauser and Taitel, *Propsective . . . 1980*, pp. 29-42.
18. Kahn and Wiener *Daedalus* XCVI, pp. 718-19.
19. *The Year 2000 . . .*, p. 168.

Even more important, the student generation should be living in an era in the year 2000 in which education will probably be respected for its economic power.

By 2000, this continuing trend of respect for education may result in advanced education being taken for granted as the indispensable key to membership in an intellectual elite at the social controls. Indeed, as Michael Young predicts in *Rise of the Meritocracy, 1870-2034,* elitism based on education may be becoming so advanced as to provoke dissent from the masses by 2000.

The likelihood of the continuance of the explosion of knowledge trend should result in expanded use of computers and retrieval facilities at all educational levels, since man's cognitive apparatus is definitely finite rather than illimitably expansible, barring biological system breaks. How to accumulate relevant data will be regarded as far more significant than an outmoded stuffing of the memory.

Curriculum Development. In a national society characterized by creative federalism, curriculum making may be more and more the province of federations of professionals who develop concepts and create materials to implement their concepts. The parochialism of projects in the fifties and sixties which involved few others than specialists in a discipline may have been outgrown. It may be taken for granted in the development of projects and learning materials that specialists in the foundations–social, philosophical, and psychological–specialists in varied media, and curriculum specialists will be heavily utilized, in addition to liberal arts scholars in the disciplines. Rather than a single curriculum design for a field, such as PSSC physics, multiple designs may have been created, many by regional research and development laboratories which were first initiated in the 1960's.

Educational Associations and Educators' Roles. In the world of the year 2000, educational associations may be larger because of the increase of educators numerically and the necessity for the salary advancement, welfare provisions, and professional information which associations provide. Quite possibly, one major organization may bargain collectively and negotiate professionally for teachers.

(My crystal ball tempts me to predict that the most remarkable and remarked-upon development as to educational organization will be the creation of the National Education Federation of Teachers, a coalition of the former National Education Association and

the former American Federation of Teachers. NEFT, as it will inevitably be abbreviated, will grow out of a steady evolution of the National Education Association toward welfare concerns and the American Federation of Teachers toward professional concerns. After years of internecine warfare, rank and file movements in both organizations will result in amalgamation, despite the opposition of the managerial hierarchies and the swollen bureaucracies of the two organizations. Thus says the crystal ball—which possibly is cracked.)

Characteristic also may be both proliferation of organizations to match new job titles in an increasingly specialized educational profession and coordination through super-organizations or holding companies to relate the work of specialized groups to a larger focus.

By the year 2000, the roles of most teachers will have been heavily influenced by the existence of supporting personnel, the available technology, and the extension of specialization. Secretarial staff, teacher aides, instructors, and assistant teachers may be the personal supporting staff of the coordinating teacher in the discharge of his responsibilities. A pool of technicians, evaluators, and researchers, available to the teacher, may also be drawn upon. The coordinating teacher increasingly may be the master of the mix, as O. K. Moore has phrased it, drawing upon readily accessible libraries or banks of books, films, television programs, sound tapes, computer consoles, etc., and utilizing trips, individual guidance, independent study, guests, etc., for instructional purposes with the aid of his staff. Perhaps a third of the coordinating teacher's six-hour working day may be spent supervising student learning of content in the existent disciplines and interdisciplines. Another third may be spent with various staff members in coordinating and planning future learning experiences. The final third may represent his specialization in education; consequently, some teachers would be engaged in individual therapy; others in conducting analysis groups for discussion with students; others in preparing television presentations, and tapes; others aiding in programming computers; others in developing evaluation techniques and tests, etc. These specializations would reflect the personalities and preferences of individual teachers, as well as their academic backgrounds.

The Pursuit of Knowledge and Leisure. For the students of the year 2000, both the pursuit of knowledge and the pursuit of leisure

will be important. Their lives outside of schools will, as now, be divided variously among study and recreation but the settings will be different. More prosperous homes may be able to afford in the year 2000 a home learning and information center. Such a center might include "video communication for both telephone and television (possibly including retrieval of taped material from libraries or other sources) and rapid transmission and reception of facsimiles (possibly including news, library materials, commercial announcements, instantaneous mail delivery, other printouts)."[20] The home center might mainly be used by young people but also by adults, much as a collection of books, or a telephone, or an encyclopedia in the home is used today by youth and also by parents.

We may see an absorption of recreational facilities into recreational parks, a process somewhat similar to the absorption of recreational facilities onto college campuses through student unions, gymnasiums, natatoriums, etc. Instead of returning to the neighborhood for recreation after school, the youth of 2000 may turn to centers for sports, arts, gossip, etc., which are embraced in the master plan for the youth environment.

Summary on Education. As to education in general in the year 2000, to this point we have commented on the possible influence of societal "system breaks" on education, on the probable especial increase in the college and university populations, on relations of education to increased urbanism, metropolitanism and per capita GNP, and on increasing emphasis on the importance of education. We have speculated on increased use of education technology (especially computers), on future coordinated use of education personnel in projects, on development of associations, on changing teacher roles and on resources for students for learning and leisure.

TEACHER EDUCATION IN THE YEAR 2000

We turn now to teacher education in the year 2000.[21] What might be some possible developments reflecting the social scene and related to the total education enterprise of the year 2000? What are some alternative future value choices?

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20. Kahn and Wiener, *Daedalus* XCVI, p. 714.
21. At this point footnotes will be abandoned to dramatize that what follows is a beginning on speculation through material for dialogue, an attempt to open rather than close possibilities. For my fact base, I owe thanks especially to the *Daedalus* contributors; to those involved in the project of eight Western states, *Designing Education for the Future*, a series of publications focused on the year 1980; to Herman Kahn and Anthony J. Wiener of the Hudson Institute who wrote the volume *The Year 2000*.

Possible System Breaks in Education

Again, as in our consideration of the social setting of the year 2000, a question immediately arises. How about major "system breaks" or "surprises"? The answer is much the same as that for education as a whole. But what of the possibility of minor system breaks in that smaller system called teacher education?

Teacher education may undergo its version of system breaks or surprises by 2000. Forces leading in the direction of system breaks include persistent sharp criticism of the efficacy of teacher education by students, teachers, and scholars; slow adaptation of teacher education to such fast-moving social forces as technology; general conservatism in teacher education; and admission of weaknesses by teacher educators themselves. Forces leading away from system breaks include the considerable autonomy of key social institutions in teacher education such as schools of education, teachers colleges, and state departments of education; the success of resistance to past "outside" proposals for change; and the lack of realistic alternatives to the present system.

If a system break appears in teacher education between 1968 and 2000, what form might it take? Among the possibilities are sharply reducing professional education preparation, and turning over what remains of the teacher education effort to the liberal arts scholars. Yet the need for some body of professional education content and the unwillingness of the liberal arts scholars to take over, as distinct from criticizing, have militated against broad acceptance of this type of system break.

Possibilities sometimes proposed include take-over of education by state departments of education. It seems likely that state department take-overs would result in either other version of schools of education, though under differing auspices and perhaps located in state capitals, or apprenticeship systems of training, conducted by teachers stressing practice and supervised by college professors moved into state departments.

Another possible system break is teacher education in 2000 planned and conducted through an industry-government complex composed of the private corporations which will have developed technologies and a U.S. Office of Education which will operate as does a European or Asian Ministry of Education. Militating against this development are the Constitution of the United States, the his-

toric American distribution of power among local, state, and national levels, and the prophecy of creative federalism.

The Continuing Program

If such system breaks do not occur within teacher education, we can assume that teacher education will probably continue primarily under the aegis of colleges and universities in increasingly urban settings. It will probably include as program-influencing forces liberal arts college specialists in disciplines or interdisciplines and specialists in professional education, whether organized in departments, schools or colleges. The programs implemented by these college and university staff members may be influenced, but in changing ways, by such institutions as federal government, state departments of education, unions, and certification bodies. An additional influencing force may be the future teachers themselves, for the voices of students will probably be heard in the land. Both implementing and influencing agents will be heavily affected by the social setting of the year 2000 which we have sketched above and by the education taking place in this social setting.

Machines and Men in Teacher Education. Expanded population, expanded enrollments, and expanded teaching personnel combined with developing technology, the continuing knowledge explosion, and new social problems may result in a teacher education which, by the year 2000, differentiates between what can be learned through machines and what can be learned through the personal presence of liberal arts professors and teacher educators. Books will still be read in 2000 but, additionally, students individually and in groups will utilize film and television collections, computer-aided instruction, simulation, models, and various information and concept-oriented laboratories. The personal presence of teacher and liberal arts educators, no longer regularly required for lectures, may take the form of individual and group planning conferences, discussion leadership, research planning, field work leadership, and occasional major lectures on new insights not yet recorded by technology.

The first four years of higher education may stress general liberal education and specialization in a discipline or interdiscipline. These college years may be set in locales comparable to present day universities, though characterized by many more laboratories reflecting technological developments. But students may often be

away from the campus, both for immersion in the field studies which may by then characterize instruction in the social sciences and humanities and for retreat to camp settings in the diminished countryside for absorption and contemplation of insights from field work and campus study carried on in urban and metropolitan areas.

A minimum of two intensive years beyond the general liberal education years may be devoted to study and practice of professional education as the minimum preparation for teaching. While centers of professional education, emphasizing laboratories for use of technology and for research, will probably persist on university campuses, a substantial proportion of the teacher education program may take place within public school settings. As educational parks develop in old and new cities, teacher education centers, university-related, may increasingly be included among the park facilities. Professional teacher educators may work within systems both as partners in the total educational enterprise and as teachers of teachers, pre-service and in-service. Those ghetto and other slum schools which persist may present a more formidable space problem for such programs, but rental of empty store fronts and other obsolescent space will probably provide headquarters for teacher educators and teachers-to-be at the scene of the action.

Sequences of Professional Education. In such public school settings, students in training may experience evolutionary sequences beginning with observation, going on to participation, including student teaching, and culminating in internship. Each student, from his entrance into the two-year program, may have one continuing advisor throughout the entire program. Characteristics of the advisor may well include recent teaching experience on the level on which he now supervises beginning teaching, knowledge of professional education and subject content, and demonstrated skill in fostering self-actualizing personalities.

Observation may take place in a variety of settings; participation may be consciously planned to include both upper and lower income situations, largely urban and metropolitan, occasionally rural. Taking the cue from the development of field work in the social sciences, specialists in the foundation areas and the theory and practice areas may be concerned with both substantive content and field experiences in school and community. Instruction in the foundations areas and in theory and practice may be timed to co-

incide with observation and participation experiences. Some scholars in the foundations areas and in theory and practice may be engaged in research and study to be embodied in books and technology; other scholars may have as their role the interrelating of issues and ideas with the school and community experience being encountered by the future teacher.

All student teaching may be televised for frequent individual replay and study by the individual and also by the advisor and the individual, and for large and small group discussion by specialists in teacher education and teachers in training.

Internship may be the transitional phase between preparation and independent teaching. As the focus of the final months of the program, internship may be accompanied by culminating seminars in which representatives of foundations, theory and practice, and the continuing counselor may participate, sometimes in the school and sometimes in the university research and laboratory settings.

More functional use of summer vacation periods by future teachers is a likely social development by 2000. The three summer vacations related to the two-year teacher education concentration may be divided among subsidized travel experiences abroad resembling more the Experiment in International Living than the traditional packaged Grand Tour, paid employment involving working with youth in summer school and community projects, and apprenticeship in research and development with educators who are carrying on studies or developing learning materials for the various technologies.

If a system break toward globalism, a highly accelerated American participation in foreign nations, should develop, the second year of the teaching preparation period for many young Americans may take place in underdeveloped countries, with, possibly, Puerto Rico and the Virgin Islands as staging areas and take-off points. Teaching, like diplomacy, may involve rotation in international assignments with occasional sabbatical-type returns to the United States for vacation, observation of American developments, and sharing of experiences.

Advanced Study of Education. Bi-annual extended vacation periods, subsidized leaves of absence, and taken-for-granted sabbatical years for all teachers may often be given over by teachers to retooling and doctoral work. The return would often be from the public

school scene of the action to the universities or regional laboratories and centers of discussions. Some sabbatical experiences may result in career shifts, from, for instance, coordinator teaching roles to material development, computer programming, evaluation development, supervision, or curriculum development, accompanied by the attainment of the doctoral degree in a credentials society which requires this demonstration of specialization for a major career shift. Such periods may also provide opportunities for the expanding number of paraprofessionals, assistant teachers, retreads from other occupations including housewifery, to be educated to become coordinating teachers.

But we should not forget that in a leisure-oriented society in which teachers are well organized in the interest of salary and welfare, many teachers may not aspire beyond their original posts and the ascending salary steps won by their negotiators. Vacations and sabbaticals may be used by many for leisure and renewal. Consequently, if teachers are to keep up with fast-developing educational technology and practice, in-service education as a part of the basic teacher working day would be essential. Here teacher education based in school systems, local and metropolitan, or operating from regional centers, would play crucial roles.

Thus teacher educators of the year 2000 may be invoved in conducting two-year pre-service training programs in school and university settings; helping paraprofessionals to professional status via institutes, workshops, etc.; educating specialists at the doctoral level in university settings; and participating as partners with school systems in in-service education of the permanent teaching staff.

Possible Splits in Teacher Education

One may predict with fair safety that in the year 2000 there will still be splits among educators over teacher education. It is probable that the liberal arts–professional education schism may persist. Yet it may be less virulent than during the 1950's when open warfare prevailed.

Perhaps we may have reached by the year 2000 a type of 38th parallel in the struggle, with a stalemate resulting in four collegiate years allotted to liberal arts and subject specialization and two years allotted to professional education.

It is also probable that the philosophers will not have become completely reconciled. We may still be hearing, under whatever

titles, the cases for essentialism, reconstruction, progressivism, realism, idealism, etc. But the discussion may be increasingly ecumenical and oriented to dialogue rather than acrimonious.

The Technologists and the Social Emphasizers. Possibly such historic splits may be muted by a new split which may now be on the horizon—the split between the scientific research wing of teacher educators, here termed the technologists, and the humanistic philosophical wing of teacher educators, here termed the social emphasizers.

The technologists may stress the compression and synthesis of exploding knowledge into a variety of technologies for learning. The social emphasizers may stress examination of the human dilemmas of mankind through the posing and testing of alternatives.

The technologists may foster research, based largely on physical science models, which can be translated into quantitative terms and embodied in storage and retrieval technology. The social emphasizers may foster research, based largely on social science models, which can be synthesized and made available to decision-making bodies ranging from the electorate to institutionalized in-groups.

The technologists may point to past educational break-throughs in technical competencies based on scientific research and development, and involving innovation, evaluation, feedback, and diffusion. They may see man's technological quests as mankind's best bet. The social emphasizers may point to past gains in control over social difficulties through use of problem-solving in the educational process and to catastrophes which continue to threaten human survival. They may urge that the world can afford technological failure while social failure would be fatal.

The technologists may look forward to increased experimentation into affecting human potential through controlled conditioning, drugs and chemicals, and influences on intellectual acuteness. The social emphasizers may view with distinct reserve the extension of experimentation on modifying human potential, citing the dignity of human personality, unsuccessful genetic experimentation toward a new breed, and reminding the public of the horrors of the Hitler regime.

The technologists may be preoccupied with closely defined, value-free laboratory studies of education-related techniques intended to foster production and efficiency. The social emphasizers

may be preoccupied with the quality of life, work, and leisure, the possible ways for man to pursue happiness, and attendant value-oriented consideration of alternatives through schools.

The technologists may argue for acceptance of a split between elite and masses by pointing out the accelerating concentration of knowledge for decision-making in elites and uncertainty about decisions on the part of the common man under the severely restricted condition of information in the communication system upon which the masses depend. The social emphasizers may claim that such acknowledgment merely defines the urgent problem to be faced by mankind: finding ways of making the knowledge of the elite accessible to the masses so that the common man may use intelligence in problem-solving and the leaders may be humanely oriented in their endeavors.

The technologists may be pleased by the logic and clarity of the content developed in many subjects by projects which continually update knowledge. The social emphasizers may be troubled by the turbulence within man and disorder in society.

The technologists may develop and support teacher-proof materials. The social emphasizers may develop and support creativity in teaching and autonomous self-actualizing teachers.

The technologists may be charged with stressing things and ignoring people. The social emphasizers may be charged with stressing people and ignoring things.

Occasional versatile teacher educators may have the educational background and personality structure to harmoniously reconcile both the technologist and the social emphasis viewpoints. But the majority may lean to one or the other persuasion and may combat their opponents academically. They may even be heard speaking disparagingly of them at parties at which both old and new forms of libations and stimulants are served.

There is only one way in which to close the venture into the year 2000 represented by this paper. It is to predict, with appropriate uncertainty, that before the year 2000 is reached, one or more major and minor system breaks, whether anticipated or not even dimly envisaged, will take place. These developments will have a profound influence on the future of mankind, including the activity termed teacher education. One insignificant pigmy outcome of such developments will be that the venture into the future represented

by this paper on tomorrow's teacher education will largely be of historical interest to whoever might come upon it in the year 2000.

NEW DEVELOPMENTS IN TEACHER EDUCATION

George W. Denemark*

A logical beginning point for considering the design of teacher preparation is the schools and the nature of teaching carried on within them. What are schools like? How should they change to better meet the needs of our changing society? What roles do teachers play in today's schools? What changes would we like to see come about in teachers to meet the challenges of today and of the future? As we respond thoughtfully to such questions we are better able to plan effective programs of teacher preparation.

The questions are complex ones, far beyond the scope of this paper. However, several recent statements suggesting new outlooks on schools and teacher roles represent assumptions basic to the view of teacher education I believe most valid. Let me turn to them briefly before proceeding.

The first statement comes from a recent address of Kevin Ryan, entitled "A Far Out View of the Schools and the Profession." In commenting on changes underway in education Ryan observed that

> "The old egg-carton school building with its standardized learning is passing. With it is going the school day dominated by the bell signaling the beginning and end of neat slices of time—45 to 50 minute packages of knowledge to be consumed by all. We are being forced to abandon our belief that children learn best in classrooms of 25 or 30 and in quiet libraries with quiet books . . . We are rejecting the notion that all children, even within the same track, should receive the same information and training, and proceed at the same rate. So, too, with the operating principle that the curriculum for one school grade or level should be set by the grade or level immediately above it . . . And further, although there are still great counter-pressures to the contrary, there is a growing disaffection with the principle of solving the problems of American education by programming the children with more and more informa-

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> tion. We are leaving behind all these ideas and structures because we are discovering that even our more intense efforts of the last ten years are fundamentally bankrupt. We have been getting better and better at preparing children for a world that no longer exists."[1]

The second statement is a part of a recently negotiated agreement between a teachers association and a school committee (Board of Education) in Quincy, Massachusetts.

> "The Committee and the Association consider that . . . practices not now in effect in the Quincy school system and practices not yet developed by any public school system may make great contributions toward improving not only the quality but also the efficiency of the educational process . . . Such areas include . . . the use of non-professionally trained personnel to perform pupil supervision tasks outside the classroom, clerical tasks, the reproduction of instructional materials, and the like. They also include the possibility of measuring the obligatory portion of a teacher's work day in terms of the time required to perform professional functions rather than a stated number of hours, the possibilities of a separate contract year and separate compensation arrangements different from the academic year, and compensation related thereto for volunteer professionals who might undertake special professional leadership and development assignments, the possibility of so reorganizing the classroom teaching function as to permit more effective use of superior classroom teachers and the possibility of identifying and describing characteristics of professional performance so as to permit more meaningful evaluation thereof."[2]

The agreement reported in part above calls for a joint committee of the school board and teachers' association to study and make recommendations on these matters and pledges that the School Committee will not consider any recommendation unless it has come first to this joint committee.

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[1]An address presented to the Illinois portion of the 100 Cities Assembly on Saturday, April 29, 1967, sponsored by the National Commission and the Illinois Commission on Teacher Education and Professional Standards and reproduced as part of the materials for the NCTEPS year of the Non-Conference.

[2]*Negotiation Research Digest*, I, p. A-3, Sept., 1967.

Clearly, these views of schools and of teachers, though necessarily limited and partial, have far-reaching implications for programs of preparation of instructional staff. They suggest the need for a new perspective or the objectives, content, and participants involved in the education of teachers.

The remarks which follow represent but a beginning in the process of rethinking the nature of teacher education. They represent some of the reflections growing out of a semester research leave which I was privileged to have during the fall of 1967 when still associated with the University of Wisconsin-Milwaukee. Rather than representative trends evident in programs of teacher preparation discerned either from the review of the current literature of teacher education undertaken or from the conversations held with teacher educators as a part of the leave related travel schedule, the points of view which follow are simply personal views stimulated by the study leave.

For a more comprehensive treatment of the common professional core in teacher preparation that I have proposed may I refer you to the December, 1967 issue of *Theory Into Practice*, Volume 5, pages 252-259.

Inadequacy of the Isolated Teacher Concept

The concept of a teacher couched in unitary, omni-capable terms is seriously inadequate to the changing needs of our schools. We have tended to talk about the classroom teacher as if teaching was, in fact, a single position with the same levels of responsibility and sophistication involved for all and with the variations simply those of grade level or subject field difference. Growing demands on the schools and the increasing number of things we expect teachers to do, not only in the communication of skills and knowledge but in having an impact on values, attitudes, life patterns make it clear that the role of today's teacher is infinitely more complex. The same is true as a consequence of the dramatic impact of technology upon the educative process and the impact of changes in knowledge and the structure of the disciplines upon what we teach, and how. It seems logical then, that we think about teacher education, not simply in terms of what program is best to prepare a classroom teacher, but rather by asking what range of programs is needed to prepare the variety of persons assuming the related responsibilities in instruction.

In a system of differentiated teacher roles we will need to conceive of a program which best prepares the senior career teacher for a coordinating, managerial role in the broad direction of an instructional team. We will need another program which focuses upon other team members—staff teachers—persons with full professional preparation and background and with appropriate specializations but without the coordinating responsibilities of the senior or directing teacher. These may serve as remedial teachers, tutorial specialists, programers, counselors, or in a host of other specialties beyond the typical subject field or grade level specialties with which we are familiar. In addition, the instructional team may include the associate or beginning teacher and call for a program designed to provide such persons with the minimum beginning skills to operate in a classroom instructional group.

Still another program needed is one aimed at the preparation of teacher aides or assistants who will not, without additional preparation, assume full instructional responsibilities but will, rather, work on assigned tasks under the direction of a senior teacher. Such programs will be para-professional in nature and are likely to be at the undergraduate level or even at the junior college level.

Another type of program to be developed is that which is focused upon clerical tasks which involve technical information and skill but clearly fall below the professional level. Beyond this may come programs relating to positions which are voluntary in nature but which require orientation or preparatory kinds of experiences.

To lump all these levels of instructional responsibility into a single position with a single job title is impossibly unrealistic. Instead, it is essential that we differentiate our concept of teaching and then seek to build a range of programs which adequately reflects these differentiations.

While e v e r y instructional slot identified above requires thoughtful program planning our discussion will focus primarily upon the nature of the program appropriate to the preparation of senior or coordinating teachers. These are persons who have committed themselves to a career in teaching, persons with rich experience, and the kind of analytical training that we associate with a planner and decision-maker. The preparation of such an individual is a complex and involved matter because the task of such an individual is so demanding. It is clear that we are viewing teaching as

a profession rather than as a trade or technical vocation. To be sure, dimensions of the instructional task are technical and routine in nature. But the unique dimensions we wish to associate with the role of the coordinating teacher are ones which involve a high level of leadership ability, a capacity for planning and for organizing and managing the efforts of others, an ability to select among alternative approaches, an ability to evaluate program effectiveness, select personnel for team assignment, and a host of other important coordinating duties.

A Blending of Theory and Practice Is Important

For such a professional role it seems clear that the preparation necessary must include both a substantial amount of pre-service and in-service education. Indeed, no person can be prepared adequately for such a role in only a pre-service program. In addition, he needs to work in a program preparing him for this role as a part of, and along with, his experience on the job. We must look at these as a part of a unified whole rather than thinking of pre-service programs as adequate to the task with in-service efforts continuing to be voluntary, fragmentary, and containing little design or structure.

The need for combining pre-service and in-service education in the preparation of coordinating teachers or team leaders makes necessary an appropriate blend of theoretical and applied studies. Teacher education programs have too often been preoccupied with discrete courses which discuss schools and educational systems, giving background on their development and talking about principles and methods of instruction but often with little relationship to the actual problems of teaching and learning as observed by and participated in by prospective teachers. Currently, however, the pendulum seems to have swung far to the opposite side and we are now seeing programs which have all but eliminated theoretical or foundational studies and which move prospective teachers almost immediately into field-based experiences. Some teacher educators currently talk proudly of the extent to which they have eliminated all formal course work and of the wide use which they are making of seminar meetings linked to on-the-job experience in student teaching or internship situations.

Both of these points of view are inadequate to an effective program of teacher preparation. The first is faulty because it attempts to build a structure of ideas detached from meaningful situations to

which they are expected to relate. The second is inadequate because it is likely to lead toward an image of teaching composed largely of technical proficiency rather than professional assessment and analysis.

If the management and coordination of teaching is complex and demanding, it seems unlikely that we can build into teachers the capacity for coordination, assessment, analysis, decision-making and other complex qualities in a preparation program which has not itself engaged in an effort to analyze, to assess, to structure the role of the schools and the nature of the teaching act.

We have often heard that one of the most potent, continuing influences on the behavior of new teachers is the kind of teaching they have themselves experienced and remember. If this is the case, to place prospective teachers in an environment which forces them to operate in partial or complete independence as a teacher with no more perspective and insight into what teaching is than they can recall from their own school experiences would seem to be a sure means of perpetuating a narrow, restricted view of teaching. Instead, we should seek to develop in every prospective teacher a familiarity with methods of analyzing teaching—their own and that of colleagues—in order to build a greater sensitivity to the choices and alternatives available to the director of learning experiences in a classroom.

The perceptions of individuals are a major factor in determining their behavior. To a family walking down State Street in Chicago and looking in the windows of Marshall Field's, the perceptions and the recollections of each member as to what he saw in the store windows may be dramatically different because of the varying interest and "set" of each individual. To assume that all had seen exactly the same thing, which they had an opportunity to do in the physical sense, is to ignore the fact that their own interests and special sensitivities undoubtedly caused them to react very differently to the experience—to "see" some things and overlook others. The same concept is very relevant to the way in which we make use of practical field experiences in the education of teachers. Rather than assuming that through the provision of a field experience we will automatically communicate important ideas regarding teaching to each prospective teacher, we should instead, attempt to develop certain sensitivities, certain frames of reference, which prospective

teachers can use to advantage in understanding and interpreting their field experiences. To simply drop prospective teachers into a teaching situation and assume that because it is reality, and because they are submerged in it they will learn to be good teachers is a grossly over-simplified and disturbingly distorted point of view. Instead, we should recognize that what students see in such situations will determine how useful and how educative the experience may be. It may simply reaffirm a prejudice, an already seriously inadequate conception of human nature or of children in depressed socio-economic circumstances. It would seem far more appropriate to attempt to provide many structures or frames of reference which prospective teachers could use to begin to analyze their own teaching efforts and those of others.

It makes little sense to assume that a person who has given little or no thought to the techniques of questioning which a teacher employs will be able to get maximum benefit from an observation of the kinds of questioning techniques which foster curiosity, reflection, analysis and inquiry in students. To assume that each observer, or each participant in a field experience will perceive the dramatic differences which may exist between several teachers in terms of their use of open versus closed structure in questioning, is to be unrealistic about the skills which prospective teachers bring to their preparation program. Instead, it would seem desirable to combine observation with structured presentations in a manner that will enable each to enrich the other.

If the objective for teacher preparation programs were to define a universal good teacher and then seek to mass produce large quantities cast in this mold, the pattern for teacher preparation would be simple. Instead, however, we share the views of Miller, Riessman, Thelen and others that there is no one best type of teacher, nor one all-purpose approach to teaching. "Different styles of teaching and different personalities among instructors are required to reach the varied interests and needs of today's children and youth and the good teacher should be thought of in terms of multiple models."[3]

While many models rather than a single one are appropriate to teacher education, the image of a coordinating teacher would seem

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[3]George W. Denemark, "Preparing Tomorrow's Teachers," *"Theory Into Practice,* VI, pp. 252-259; December, 1967.

to include such common elements as ability to reflect and analyze, to see alternative courses of action which might be relevant to the instructional problem under consideration, to employ an evaluative approach to teaching and learning and to effectively direct the efforts of others. Such abilities would appear to be ones which would best be developed in programs which give deliberate attention to reflection, to analysis, to the search for alternatives, to the assessment of consequences, and to work with teams, rather than programs which hope for them to come about but without structured efforts to induce such qualities.

The structure which we should seek to provide prospective teachers is not one which represents a single best framework but instead is one designed to stimulate the utilization of a number of different but promising frameworks. To see the relative strengths and weaknesses of each, to assess the appropriateness of a particular way of assessing a teaching or learning problem—such would be the objectives of providing systematic attention to different ways of studying teaching. Students might be introduced to Flander's interaction analysis, to Bellack's language of the classroom, to the Stanford micro-teaching program's identification of a series of teaching skills, to the logical analysis emphasis of B. O. Smith, among others.

To ignore an approach which emphasizes alternative means of analyzing teaching may result in a program of teacher preparation which is more oriented to training craftsmen and technicians than to the education of professionals. The apprenticeship concept may be adequate for auxiliary or paraprofessional roles in the classroom but it is seriously inadequate for a person who is to direct and coordinate the learning experiences of a group of children and the instructional efforts of a team of adults with a range of competencies.

Preparing a teacher for a position of this demanding nature is impossible in a kind of simplified "cookbook" or "paint by the numbers" approach. It is also impossible in an approach which is based wholly upon the individual's perceptions and subjective reactions without the benefit of a systematic, rigorous, and scholarly analysis of education and the role of the teacher.

Rather than viewing the issue in teacher preparation as an either-or choice between preoccupation with practice or focusing

upon foundations, we would urge that foundational studies be structured around the practical problems of teaching and learning. We cannot afford to prepare teachers with no more than a minimum survival kit of techniques that they will use and reuse uncritically. Neither can we afford to engage in endless general studies which never suggest their relevance to the task of the teacher. There are, in fact, a number of important concepts, ideas, and structures relating to the processes of teaching and learning and to the content of the curriculum which teachers should understand. But they should be understood in the context of the school and of the practical decisions which schools and teachers must make every day.

For example, instead of organizing a course in philosophy of education around a discussion of different general philosophies we might better begin with the direct observation or simulation of a problem representing a conflict in values confronted by a teacher and a group of children. After establishing the instructional problem one might turn to a consideration of differences in teaching and learning behavior that could be present and then to an effort to categorize or structure these behaviors into a framework consistent with an integrated outlook on human nature, good, change and other fundamental philosophic questions. Rather than abandoning the study of philosophy or postponing it until the graduate or in-service education level following a series of "practical" studies we urge that teacher education programs employ the reality base of teaching and learning problems as the point of departure for foundational studies. It would appear to be most healthy to have faculty members involved in foundational courses actively seeking problems, issues, and decisions confronting classroom teachers which could be better understood and decided by insight from some of the social and behavioral sciences disciplines. If content in foundational courses cannot be so related, perhaps it must be judged irrelevant to the preparation of teachers.

A problem closely related to the determination of the proper role for foundational studies in teacher preparation is that of the relationship between liberal and professional studies. On most college campuses liberal and professional education are carefully segregated both by time in the students program and by lack of effort to integrate ideas.

Instead of assuming that liberal studies might be some way

"tainted" by association with professional studies or that general studies have no relevance to the work of the teacher, perhaps we should explore anew the possibility that both could benefit from an interrelationship. Liberal studies might become invigorated and more action-oriented if confronted with the obligation to search for applications of important concepts to occupational fields. And professional education might benefit from recognizing that the primary role of elementary and secondary teachers is general education and that, therefore, the teachers preparation is really begun with his initial liberal studies.

Recent trends in other professional fields like engineering and medicine suggest that their earlier acceptance of a strict dichotomy between liberal and professional studies and a long deferment of the latter is now under serious review.

Research and Development Needs in Teacher Education

Perhaps an appropriate point of conclusion is that of recent research and development efforts in teacher education. A review of the recent literature by Macdonald and Denemark which appeared in the June, 1967 issue of the *Review of Educational Research*[4] disclosed that large grants to teacher education have been given for program demonstrations rather than for theory development or carefully designed research. Many of the large projects billed as experimental turned out to be demonstrations entailing minimal and loosely structured evaluations of program consequences. In contrast to some of these large well-supported projects a number of studies conducted by individual researchers were reported which showed much more care in research design. They were frequently focused on so small a part of the complex process of teacher preparation, however, that their effect was fragmentary and consequences insignificant.

Several writers during the period covered by the review saw an urgent need for the development of conceptual frameworks by which to plan teacher education programs and assess their behavioral consequences. Wattenberg, for example, called for a large scale multi-discipline search for basic principles and their application rather than the current "tinkering." Both Goodlad and Sorenson

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[4]George W. Denemark and James B. Macdonald, "Preservice and Inservice Education of Teachers," *Review of Educational Research*. XXXVII, pp. 233-247, June, 1967.

suggested a balance between theory and practice and the need for establishing conceptual frameworks for teacher education.

Recent efforts of the United States Office of Education appear to be most supportive of this emphasis upon broader conceptual frameworks for research and development. Three examples of USOE program activities consistent with such views are 1) the support priorities established by the Division of Vocational and Adult Education emphasizing broadly conceived rather than fragmented or isolated studies, 2) the comprehensive elementary education model program of the Research Branch, and 3) the so-called Triple T program of the Personnel Training Division.

The institutes and workshop experiences which have been funded by the federal government and by certain foundation groups in recent years have not been notable for their success in changing the patterns of teacher education associated with on-going programs of institutions. The USOE should be commended for their concern about the limited success we have experienced to date in effecting institutional changes by such special projects. However, the insistence by at least one of the above-mentioned programs that we view a new model as a complete replacement for the existing program raises the critical question of adequate evaluation in teacher education. Can we judge adequately the effectiveness of a new model for teacher education if we have been forced to abandon its established alternative as a condition of initiation?

Conclusion

Much more could and should be said about changing needs and changing programs in teacher education but time does not permit. Perhaps the recent developments in legislative support for teacher education will enable us to avoid either a complacent adherence to outmoded views of teacher preparation based on yesterday's schools and yesterday's teachers or a frantic, uncritical adoption of new programs without adequate conceptualization or proper balance.

NEW DEVELOPMENTS IN TEACHER EDUCATION

Howard F. Helm*

The Bureau of Research of the U. S. Office of Education has launched a major effort to support the development of comprehensive model teacher training programs at the elementary school level. The programs would train teachers for preschool and elementary schools, and would contain both preservice and inservice components.

The overall effort has been divided into two stages. In the first stage a request has been made for proposals to develop detailed educational specifications for conceptual models of comprehensive teacher training programs. In response to this request, approximately 10 projects will be funded. A second request for proposals will be made for the complete development and fabrication of comprehensive teacher training programs. The purpose in submitting proposals in response to the second request is for the development of complete instructional programs based on the models developed in the first phase. It is anticipated that three different programs will be funded in order to provide alternative programs for demonstration and dissemination to the teacher education community.

This program has been initiated because research and development in the area of teacher training is one of the priority areas of the Bureau of Research. Many advisory committees of the U. S. Office of Education have continually stated that research and development on teacher education should have one of the highest priorities. Secretary of Health, Education, and Welfare, John W. Gardner, and Commissioner of Education, Harold Howe II, have both stressed the need to invest in human resources and to give attention to programs preparing educational personnel. The U. S. Congress has also put a priority on the training of educational personnel through its enactment of the Educational Professions Development Act.

Extensive development efforts have produced new curricular materials, pedagogical techniques, and instructional technologies

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which were designed to more effectively meet the demands and needs of today's students. It is absolutely essential that the training institutions prepare teachers to be able to adequately employ these new educational advancements. Summer institutes for the retraining of teachers to meet these needs is not the complete answer. Attempts must be made to change the existing preservice programs in order that teachers will enter the profession with the required skills and knowledge.

The roles of teachers are changing. Innovations in team teaching and non-graded programs require skills and knowledge that the traditional self-contained classroom teacher did not need. For example, the individualized instructional program at the Duluth Public Schools, where the students work on personal contracts, places new requirements on the teacher. The individually prescribed instructional program developed by Dr. Robert Glaser at the Learning Research and Development Center, University of Pittsburgh, also places new requirements upon the teacher. No longer does the teacher spend most of his day talking to the class as a group and his evenings grading papers. His role is now more devoted to diagnosing a learner's achievements and nonachievements and, on the basis of his analysis, prescribing the next instructional tasks to be undertaken by the pupil.

Dr. R. Louis Bright, Associate Commissioner for Research in the U. S. Office of Education, speaks of teachers as performing five roles: diagnostician, counselor, discussion leader, classroom manager, and stimulating adult model. However the role of the teacher is described, it is quite obvious that his role is changing and varied, and the teacher must be prepared to meet the requirements of an ever-changing and varied role.

Other innovations on the educational scene call for differentiated staffing patterns of various sorts. One of the most publicized is that proposed by Dr. Dwight Allen of the University of Massachusetts. In such staffing programs, different grades or levels of certified staff are employed rather than their all being at the same professional level.

John Battles[1] of the Metropolitan School Study Council, which

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[1]Battles, John, "Teacher Aides—Metropolitan School Study Council Schools." *Exchange*, XXVI, p. 3, December, 1967, Metropolitan School Study Council, The Institute of Administrative Research, Teachers College, Columbia University.

is affiliated with the Institute of Administrative Research at Teachers College, Columbia University, estimated that there were 100,000 teacher aides in the public schools in 1965. He estimated that in five years there will be 250,000, and that eventually they will outnumber the certified personnel. Certain social forces currently at work within the teaching profession might conceivably cause the situation to be somewhat different from Battles' projections. However, it is probably realistic to assume that the employment of teacher aides is going to increase. Thus, teacher training programs must prepare teachers to cope with the different roles that teacher aides, as well as various forms of differentiated staffing patterns, will demand of them.

The question might be asked as to why this development effort is directed at the elementary level and not the secondary level. Certainly the needs at both levels are great. There is a current emphasis on developing and implementing programs in early schooling in an attempt to meet the needs of the educationally disadvantaged. There also exists at the present time a climate and desire on the part of many to extend free public education downward in terms of age of school entrance and to provide it for all pupils and not just the educationally disadvantaged. The Educational Policies Commission[2] in 1966 stated that all children should be given the opportunity of receiving an education beginning at age four at public expense. This suggests that now is an opportune time in which to conduct some creative development efforts in elementary teacher training programs.

There is a current awareness on the part of society of the need to improve the effectiveness of the educational efforts which serve the educationally disadvantaged. The Federal Government, especially the Department of Health, Education, and Welfare and the Office of Economic Opportunity, has given this the highest priority in the field of education. Educational researchers and other behavioral scientists have pointed out that particular attention must be directed toward the earliest years of schooling if marked improvement in the educational status of disadvantaged youngsters is to be readily achieved. Programs such as Head Start, Follow Through,

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[2]Educational Policies Commission, *Universal Opportunity for Early Childhood Education*. National Education Association of the United States, 1966, p. 12.

and Parent and Child Centers are attempts on the part of the public to respond to this admonition given by the behavioral scientists.

A number of states, as well as individual school systems, are actively planning and working to provide public education for children younger than ages six and five. For example, the New York State Board of Regents[3] has issued a position paper on prekindergarten education for the State of New York. It is proposed that in the first phase of the program, from 1968 to 1970, existing prekindergarten programs will be expanded and strengthened. It is proposed in the second phase, from 1970 to 1974, to initiate and offer free public education to all four-year-old children whose parents desire it. In the third phase, from 1974 to 1978, it is proposed to initiate and offer free public education to all three-year-old children whose parents desire it.

The past research and development efforts in teacher education supported by the U. S. Office of Education have tended to be small-scale efforts and have not been too numerous. Consultants have continually advised the U. S. Office of Education that attention needs to be given to supporting large-scale development efforts that look at the complete instructional system and not just as selected portions of it if significant changes are to be made. This development effort is such an attempt.

Because of the key role the teacher plays in facilitating learning, particularly in young children, he must have the most up-to-date theoretical and substantive knowledge and professional skills to perform successfully. To date, research and development activities have generated new knowledge, materials, and methodologies with great potential for improving the effectiveness and efficiency of the teaching-learning process. If funds are made available, institutions should be able at this time to markedly restructure their teacher education programs to include the best of what is now known and available.

What is clearly needed at the outset is a variety of sets of detailed educational specifications which can be used as guides in developing sound teacher education programs. Such model specifications would encompass all aspects of a program for training teachers—administration, instruction, materials, equipment, and staffing.

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[3]New York State Board of Regents, *Prekindergarten Education*. The University of the State of New York, The State Board of Education, 1967, p. 15.

Thus, it would be possible for institutions to select and make use of the specifications in developing and implementing significantly improved programs for training teachers.

On October 16, 1967, a request was issued for proposals to develop educational specifications of model programs for the preparation and training of elementary school teachers. Any institution or agency having educational research and development capabilities was eligible to submit a proposal. Therefore, the requests were mailed to nearly all of the institutions of higher education having teacher training programs, as well as to research and development centers, nonprofit and profitmaking research corporations, the Regional Educational Laboratories, the State departments of education, some local school systems, and a few selected professional organizations.

January 1, 1968, was the deadline for the submission of the proposals for the development of the educational specifications for model elementary teacher training programs. Eighty proposals were received. The proposals were reviewed by an ad hoc advisory panel of field readers who advised the U. S. Office of Education on their technical merits. The proposals are now being evaluated on the basis of fiscal criteria by contract specialists within the U. S. Office of Education.

Contracts for the development of the educational specifications will be awarded on March 1, 1968. It is anticipated that up to 10 contracts will be let in order that the educational specifications of a number of alternative models may be developed. The final reports will be due on October 31, 1968.[4]

A criticism that has been made of the overall planning is that enough time was not allowed for the preparation of the proposals and for the development of the models and their educational specifications. There is some validity in this criticism. However, a number of high quality proposals were received; and, it is felt that, with a concentrated effort during the summer months, the contractors will be able to complete their tasks by October 31, 1968.

The final reports from the first phase are to be used in the preparation of proposals in response to a second request for pro-

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[4]Contracts have subsequently been made with the following institutions: Florida State University; University of Georgia; University of Massachusetts; Michigan State University; Northwest Regional Laboratory; University of Pittsburgh; Syracuse University; Teachers College, Columbia University; and The University of Toledo.

posals for the development of complete educational systems for the training of elementary school teachers. The submitters of proposals responding to the second request will use the models developed in the first phase as a basis for the programs to be developed. Because of the desirability of beginning the development efforts for the second phase in the spring of 1969, it has been necessary to limit the amount of time allotted to the first phase. One reason for this is that preparation of the proposals for the second request will require a greater amount of time than did preparation of proposals for the first request.

In developing the proposed program to fund development efforts in elementary teacher education, many individuals were contacted and consultative inputs invited. Individuals from such organizations as the American Association of State Colleges and Universities, the American Association of Colleges for Teacher Education, The National Commission on Teacher Education and Professional Standards, and the National Council for Accreditation of Teacher Education were contacted and consulted. In addition to the Bureau of Research staff, other U. S. Office of Education personnel representing various programs concerned with teacher education, such as the NDEA institutes program and the Teacher Corps, provided assistance. In the early part of August 1967, a special ad hoc advisory panel was convened to review the overall program and to give specific advice on the request for proposals to develop the educational specifications for models of elementary teacher training programs. In September the U. S. Commissioner of Education's Research Advisory Council reviewed the plans for the program and the details for the initial request for proposals.

A number of possible conceptual frameworks for programs to train teachers do exist. For example, some teacher education programs might include educational theory, instructional methods and subject matter, and clinical teaching experiences as an integral part of the undergraduate curriculum. Other programs might prescribe a general education undergraduate program, including an academic major or majors, to be followed by a program of professional training in the schools. The latter might be administered in varying degrees by an institution of higher education and by a school system. However, in any event a teacher training program should include both preservice and inservice experiences for the prospective teach-

ers, and each proposal should show how professional educators in local school systems will be involved in the project.

In recognition of the wide variety of possible conceptual bases for the training programs, the following program components were included in the request for proposals for the development of the specifications:

1. Teacher training program goals in terms of expected and measurable teacher behaviors; the rationale for each of the desired behaviors.
2. Practices for selecting teacher trainees for the program.
3. Professional learning experiences and content to be provided the trainees within the college of education in the following categories:
   a. Theory;
   b. Subject matter related to the elementary school curriculum;
   c. General approaches to instruction and specific teaching methods, techniques, and tools;
   d. Preclassroom clinical experiences (*e.g.*, simulation and role playing);
   e. Student teaching.
4. Teaching methods (including tools, techniques, and grouping practices or methods of individualizing instruction) to be employed by the college faculty in presenting the various kinds of professional content.
5. The relationship of professional sequence (not necessarily courses) to the entire undergraduate program. When a particular activity would be introduced into the undergraduate program, what percentage of the total undergraduate curriculum would it comprise, and what nonprofessional courses (outside of the college of education) would be required or recommended?
6. Types of content or experiences appropriate for on-the-job (inservice) training for graduates of the model program, as well as the kinds of materials and methods to be used.
7. Faculty requirements and staff utilization patterns; inservice training program for college staff.
8. Evaluation and feedback techniques to be used throughout and at the end of the program to determine to what extent trainees

have acquired the essential teaching behaviors; followup studies of program graduates.

9. A multipurpose management and evaluation system, with data storage and rapid retrieval capabilities, to permit continuous diagnosis of student progress and frequent restructuring of the trainee's learning experiences.
10. A plan for continually and systematically assessing, revising, and updating the program.

Any of the above components may be rejected or recast and additional components added. The particulars of each of the components in the proposer's model, however, as well as any subcategory thereof, should be described. A rationale (based on research and/or logic), compatible with the conceptual framework of the entire model, should be provided for each component of a teacher education program as specifically described. The procedures for fully developing the specifications of each component of the model should be delineated.

The final reports for the contracts that are to commence on March 1, 1968, will be submitted on October 31, 1968, to the U. S. Office of Education. Each report will contain detailed educational specifications for a particular model program for training elementary school teachers. A great deal of scholarly effort will have been made in producing these reports. They should represent some of the best thinking at this time as to what the nature of high quality elementary teacher training programs should be.

The Bureau of Research of the U. S. Office of Education plans to issue in the fall of 1968 a second request for proposals to develop complete programs for the training of elementary school teachers based upon the models prepared in the first phase. Support would be provided over a four- to five-year period at a sufficient funding level to permit the development of the complete instructional and administrative systems, as well as of the fabrication of all of its components. It is anticipated that approximately three contracts will be let for the second phase.

The second request for proposals will limit the eligible submitters to institutions which train teachers, or consortia of such institutions, producing large numbers of elementary school teachers. Tentatively, large production has been defined as graduating at least 100 elementary school teachers per year. The second request for

proposals is a new request, and the eligible institutions will not be limited to those receiving the contracts to develop the educational specifications for the models.

An institution receiving a contract in the second phase must be entirely committed to developing and adopting the particular model program it selects. Not only the administration of the institution, but also a goodly portion of its educational faculty, would have to be committed to the new program if the effort is to be effectively carried out. The purpose of the second phase is not to develop a program training an experimental stream of elementary teacher education majors. At the end of the four- or five-year development period the new program should have become the sole elementary teacher training program, or the goodly portion of it, at any institution selected for conducting the development work of the second phase.

It is assumed that as an institution develops a model program, its system will contain evaluation and feedback mechanisms. Thus, an institution's initial model is not to be a straitjacket which will not permit any change in the features or components of that model. The components could conceivably look quite different at the end of the four- or five-year period from that projected at the beginning of the effort, but it is anticipated that these differences will be due to newer and better technologies that have been developed.

It is anticipated that an institution receiving a contract for the second phase will not necessarily be carrying on all of the development work with its own staff. It would be unlikely that a single institution would have all of the top quality development staff that would be required to carry out all of the various aspects of the contract. An institution receiving a prime contract, would, no doubt, certainly need to secure the employment of top development resources from around the country through subcontracts for developing specific courses or subcomponents of the total system.

The support for the development of approximately three different innovative elementary teacher training programs that represent the ultimate in excellence should provide some alternative programs that could be adopted by other teacher training institutions. This effort should provide new and significant inputs into this most important area, the training of elementary school teachers.

SUGGESTED RESEARCH TO IMPROVE TEACHER EDUCATION

David R. Krathwohl*

This paper contains observations about teacher education, hopefully phrased in such a way that they may intrigue some of you into studying them. Although we have made tremendous strides in the last few years in the use of techniques such as video tape feedback and in the analysis of classroom interaction, this is only a beginning. We have a great deal to learn about how to educate teachers. The questions that are posed in this paper are concerned with some of the basic features of teacher education. Study of these questions should markedly advance this field.

The questions to be explored are the following:

1. What is the appropriate liberal arts base for teacher education?
2. How can we improve our presentations in teaching for cognitive objectives?
3. How can we better sequence the learning of teaching skills?
4. How do we heighten the beneficial effect of student teaching?

Liberal Arts Education Basis

1. What is the appropriate liberal arts base for teacher education in terms of primary objectives, appropriate courses and length of course of study?

A typical undergraduate "general education" as described in the catalogs of most of our institutions of higher education would include goals such as: the student acquires a broad base of knowledge in a variety of areas, he prepares himself to be an able citizen in our modern complex society, he sharpens his skills and abilities to become a competent problem-solver in areas above and beyond those in which he was specifically instructed, and in particular, he learns how to learn, so that education is a process one continues throughout his lifetime. As objectives, these will probably never go out of style.

But when one begins to translate these into operational terms one confronts pressures to orient general education programs in

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ways that would profit those seeking specialized training. As more and more knowledge accumulates in every field, the student must begin earlier and earlier to specialize if he is to attain a genuine mastery of the material with which he must competently deal by the time he graduates. In many instances, skill in the research method of a field is as important as knowledge about it and so research practice begins early in the student's program. A rather thorough competency in certain skills and concepts which are important for specialized advanced study are built into the early "general education" courses. For example, much derivation of equations which is important to advanced mathematics but of little consequence to the generalist is frequently built into early courses in mathematics. These courses might more properly concentrate on the mathematical concepts per se.

One response to the pressure for specialization has been the development of new "general education" courses which are specialized in the sense that they have been designed to provide for teachers the basic general concepts in a field. As yet, such courses exist only in a few of the larger institutions and have generally developed in response to a need to provide a succinct course for teachers, outside the program for science specialists. In almost no instance have they resulted from an overall study of the whole picture for general education required by the teacher.

Questions about the nature of general liberal arts education at the college level also result from an analysis of pre-college education. Those who have studied the new curricula will be surprised to find how much of what was formerly taught at the college level is now incorporated in the high school curricula. And this downward movement extends into the grades, even to the point where kindergarten and pre-school experiences increasingly incorporate concepts of numerical and verbal skills in structured ways. Perhaps the bulk of what was considered a liberal arts education is now more properly the province of the high school.

It becomes clear then that both the nature and length, two inherently interdependent questions, need to be re-examined. The currently developed specialized "general education" courses for teachers may suggest a desirable direction. But there is a need to examine even these in the context of more general questions, such as, what overall background of knowledges, skills, abilities and at-

titudes does the elementary school teacher need in order to understand and competently use the teaching materials provided for her in a variety of teaching fields; and, which of these should be taught at the college level? The result would be a long needed thorough re-examination of the fundamental constitution of the basic liberal education of teachers, and the specification of the knowledges, skills, abilities and attitudes which would comprise its objectives. It might well result in courses which have general usefulness for those who do not plan to be teachers.

The length of general liberal arts college training is called into question by more than the fact that much of the current liberal arts curriculum is being taught in high school. There are also pressures to move professional education training up into the graduate level, thus allowing a four-year base of liberal education. Like the specialized courses for teachers, it is not yet apparent that this pressure results from some careful study of what constitutes an adequate liberal arts base, and that such a base requires a full four years. The pressure for change appears to stem out of such desires as: making teacher education parallel to other professions which concentrate their work at the graduate level, obtaining more mature persons for the profession, deferring the occupational decision which is forced too early for many students; and, providing a re-entry point to a vocation for liberal arts graduates who have not yet made a definite vocational choice. Desirable as some of these may be as goals, should a fifth-year be mandated for all students until the nature of the preceding four years of study and its relation to the job of teaching is more appropriately defined?

That we are equally concerned with a revision of the areas in professional education will be clear in the points that follow.

Teaching and Cognitive Objectives

2. How can we improve our presentations in teaching for cognitive objectives?

This may appear a peculiar question to those of you for whom teaching is your bread-and-butter and presentations of subject matter are almost second nature. Those of you who have used TV to study the impact of your teaching or worked with a TV director to improve your instructional presentations may have some inkling of the concern underlying the question.

A method of understanding the complexity of presentation be-

came apparent serendipitously in some research with Dr. Norman Kagan and Dr. Sarah Hervey of Michigan State University on problem-solving styles. We used one of the Chem Study movies,[1] and asked our subjects to view an eight-minute film clip just as they would if they were viewing the film in class. We video taped them as they watched the film using a split-screen technique so that we simultaneously captured both their own attending behavior and what was appearing on the movie screen. We then replayed the video tape to the subjects to help them relive their original viewing experience, stopping the video tape at various times to ask them to introspect as to what was going on in their mind at these points. We were thoroughly amazed at the students' problems of understanding what appeared to be quite a good film.

Let me give you an example. The film is intended to demonstrate the scientific method. In it two chemists arrive at a design for an experiment and carry the experiment through. In the introduction, one can almost hear the director in the wings saying, "Let's capture their attention!" So the introductory material describes the very unusual content of the film. I've not told you the content because I learned from our research. Immediately after he described the content of the film, the main intent of the film was described. But 92 percent of our subjects had turned their thoughts inward to consider when and where they had last heard of this peculiar content and what they knew about it. They very effectively tuned out the film so that instead of capturing their attention for what was said next, the point of the film, the speaker was largely talking to himself. A ten-second filler of inconsequential material—a ten-second pause that would have permitted the individuals time to return to the film—or a dramatic change in sight or sound, which would have restored their attention to the screen, would have permitted absorption of the main message.

Let's take another example. We discovered that students tended to "type" the two discussants in the film so as to know which one to attend to for the right answers—our tendency toward "good guys vs. bad guys." Up to one point in the film it was the Englishman that was giving the right answers. But when the breakthrough came, it

[1]Kagan, Norman, Krathwohl, David R., and Farquhar, William W., *IPR Interpersonal Process Recall: Stimulated Recall by Videotape*, Section IV Using IPR to Study Teaching Learning Processes, pp. 12-43. (Educational Research Series Number 24), East Lansing, Michigan, Bureau of Educational Research Service, College of Education, Michigan State University, 1965.

was the American who suggested it. A number of students found this very confusing. Their ability to follow the remainder of the discussion was impaired until they had straightened this point out in their minds.

Take still another example. At one point, the instructor is describing his apparatus. Drawing it as he does so, he begins his drawing in the upper left-hand corner, just as one writes, and proceeds to sketch in the apparatus from top to bottom, and left to right. Verbally, however, he describes the apparatus from its middle up and middle down. Students thinking that he is describing simultaneously what he is drawing, are confused and find that they have not followed the design of the apparatus.

Our method of investigation suggested that there are a number of principles that do not appear in methods textbooks which could help a teacher make her presentations more effective and better communicate with her audience. Thus, principles such as allowing sufficient time for the audience to return to attending to the message-carrying stimulus following provocative, exotic, or similar kinds of stimuli which might cause students to leave the field, might be the generalization one draws from the first observation. The generalization to be drawn from the second, may be that we too often present material in "typed" situations so that students are unwilling and unable to switch gears as easily as they ought. Here we run into a problem created by our own teaching. Depending on our objective, we can avoid the problem by keeping the "typed" person's role consistent, or we can teach to give practice in breaking the sets caused by using types.[2] The generalization from the third obvious and simple example: when using the chalkboard, coordinate the sequence of verbal and non-verbal presentations so they reinforce one another.

Many other helpful principles can be formulated by this process. But they have yet to be drawn from the presentations that our best teachers make. They have yet to be put in a form available to our student teachers.

The variety of problems in understanding which appeared to

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[2]Parenthetically, our teaching does cause some very poor learning sets. We noted that students copied in their notebooks all kinds of irrelevant details because they feared that they might be tested on them. Each and every item that appeared on the chalkboard whether important or irrelevant went into notes. We found a student noting the university in England at which one of the experimenters got his degree, a fact completely irrelevant to any of the conceivable purposes of the film.

surround even one of the better films suggested still another point. Having teased out such generalizations, could we now expect a teacher to give a perfect performance? One that would not violate any of the principles? I doubt if people are that perfect. But they might approach it, if they could repeat the performance, eliminating the errors piecemeal. This is possible using media which would permit us to successively re-dub sections to eliminate problems. Just as with the development of programmed material which is iteratively reworked until 85 to 95 percent of a group of students can learn material at one pass, so it seems likely that we could achieve similar levels of understanding if we very carefully studied a presentation and adequately reworked it.

This would, of course, provide an entirely new role for the teacher. She would give far fewer presentations and these would be spontaneous. Other presentations would be pre-recorded. The teacher's role would then be reserved for correcting those student errors which occur too rarely to take into account in the production of presentations; and, for instruction which involves student participation and which cannot be preprogrammed. This, in turn, would eventually have very important implications for teacher training.

As an initial step we need to tease out these principles and provide teachers help in learning them.

Sequencing the Acquisition of Teaching Skills

3. How can we better sequence the learning of teaching skills?

In studying live teaching situations by the same technique described previously, we were able to get teachers to introspect about their thoughts during presentations. It led us to speculate on the pattern a teacher follows in learning her skills. We projected three stages: first, the teacher is presentation-centered, second, interaction-centered; and third, pupil-centered. A good teacher may move successively through all three stages as he gains familiarity with what he is teaching and gains experience. He may start closer to the second stage if his pre-classroom preparation is very good. Other less adequate teachers may never escape the first or second stages.

In the first stage, the teacher is not sufficiently familiar with the content and how to present it so that it flows. He occasionally tunes out the students and attends primarily to what he, himself, is saying, and how he is saying it. He is planning ahead as to what he'll say next, and how he'll get there from where he is now. This

stage is the least permeable of the three to modification by student feedback, for the teacher is primarily concerned with his own presentation, or, if interacting with students, with directing their discussion. Instructional problem-solving in this stage is done primarily in the context of preliminary lesson planning.

At the second stage, the teacher is more comfortable about teaching the content and is more concerned with student feedback. He responds to the class as a group, however, judging the quality of the lesson by group feedback and general student reaction.

Both of these stages we found documented in our protocols from teacher introspection. A third stage is an extrapolation from these data. In the third stage, the teacher is comfortable enough to coast through instructional situations without so much conscious guidance, his control of the direction of the class is more subject to student feedback. At this stage, the teacher may also leave the field but here he will do so to make use of specific student reaction; for example, to devise ways of modifying the lesson, to include particular individuals who are not paying attention, or who do not appear to understand. The teacher at this stage is actively searching for clues regarding individual progress and is revising the lesson accordingly.

Assuming that at least for a while teacher presentations still will be important, such an analysis suggests a possible "stages approach" to student teacher training. Training for lesson preparation would, as now, be given first, emphasizing presentation of content. At this stage, feedback sensitivity training would be limited to that necessary for maintaining class control. Later, when the student is comfortable with content presentation, his sensitivity would be expanded–first to include feedback from the entire group, and then to sensitivity to individuals and ways of using class feedback for altering the lesson to suit individuals as well as the group.

This is one approach to sequencing the entry of a teacher into teaching. That it is a model in need of research may already be apparent, but perhaps it will be still more apparent if we contrast it with an alternative approach.

Let me begin with an analogy which my friends in the counseling field may object to, but which I think is sufficiently accurate to be useful. It appears that the counseling field has found a rather universally useful means of inducting the counselor to counseling.

It is a point of view which is called client-centered counseling. It requires the student to listen carefully to what the client says, and to reflect the client's feeling in his reply. Basically, the counselor is involved in holding up a verbal mirror so the client may see himself. Through this he helps the client to move toward a better understanding of his feelings to a clearer and more complete expression of his problems; to objectively examine this perception; and to move toward an appropriate resolution of the situation. As the student becomes more sophisticated, his superior encourages him to move from the exclusively client-centered point of view and to begin to probe more deeply for feelings. He is helped to move toward a more flexible eclectic role, still using non-directive counseling but also trying interpretation and various other techniques as he learns they are appropriate to speeding client growth. He gradually takes greater and greater responsibility for the guidance of the counseling situation, not to the point where control is solely his, but rather to a point where he shares responsibility for client progress. This is, of course, an over-simplification, but it outlines some of the essentials of the procedure.

Let's look at what this does for the student counselor. First, it forces him to become aware of the client's thinking and feeling as he makes provisional tries at mirroring them for the client. Second, it sensitizes him to the clues and cues the client supplies to him. Third, his concentration is on the client rather than on himself so that he is less self-conscious about himself and his own role. Fourth, since the initiative is with the client, the interview is less likely to go beyond the comfortable limit of what the client can handle. Finally, it leads to an easy transition whereby considerable initiative can be assumed by the counselor as he feels he can handle it and it is appropriate.

The student counselor is a useful analogue of the student teacher. In contrast to our present student teaching situation which places the responsibility for instruction on the student teacher from the start, the counselor training model suggests that the initial placement of the student teacher should be: where the emphasis is on the classroom learner, where the student teacher concentrates on the classroom student's learning processes, and where the classroom student controls the speed and direction of learning. A learning experience in which a teacher constructs instructional materials of

a programmed instruction type for students may approximate this model except that here the major initiative still lies with the teacher in creating the learning situation.

The tutorial model may also approximate the desired situation, but it also puts the responsibility for control of the situation on the teacher and does so in a less structured situation than programmed instruction.

What is needed is a learning situation in which the teacher can help the student to explore his learning process. Video tape or some similar record of the student's learning performance might provide the basis for such a situation, permitting both teacher and student to work on a common problem of understanding the nature of that student's own learning process and the location of his difficulties in a problem area he has chosen. Gradually, the student teacher might take the initiative for providing remedial learning, and then for developing the initial learning experience. Such a procedure might lend itself easily to a smooth transition from the examination of an individual's learning experience to those of a group. Thus one could video tape or similarly record a small group, then examine with them their common and their unique problems. Again this could progress to developing remediation and to determining how best to structure the initial learning experience. In additional stages, the size of the group might be expanded to normal class size and the analysis of learning protocols reduced in scope and frequency.

I don't know whether or not this model will be better for inducting students into teaching than our present one. It seems to fulfill criteria for the initial teaching experience that appear to make some logical sense: (1) the teacher's initial attention is on the student in attempting to understand him in his learning process rather than on himself and his manipulation of the instruction; (2) the responsibility for structuring the situation lies outside the teacher in some instructional material chosen by the student which student and teacher explore jointly; (3) the nature of the exploration is such that the teacher's skills of observation and interpretation are sharpened as the process proceeds and as the teacher acquires greater understanding of the learning process; (4) the process leads naturally into a transition to the real teaching situation.

It seems that those in counselor training have found a useful

model. We perhaps should seek a better model than the one we have used.

Increasing Student Teaching's Value

4. Finally, I should like to ask the question of how we can increase the value of the student teaching situation.

One critical factor in the success of student teaching is the compatibility of critic teacher and student teacher. This compatibility has not been studied; it needs to be. It seems reasonable that one important factor in this match is more than a matter of the "easy-going" nature of the critic teacher but is probably a function of the match between the style of instruction that the critic teacher models and the student teacher's "natural" cognitive and affective style.

The instructional style adopted by a student teacher seems initially to be heavily influenced by the supervising teacher or college teachers with whom he has worked. The extent to which this instructional style is compatible with his own cognitive approach to problems and his own affective orientation toward the world is reflected in the extent to which he feels comfortable with such a style, perhaps in the extent to which he is successful with it, the way in which he modifies it, and so on.

It would seem important, therefore, that we research the match of supervisor to student teacher. We have a number of models of teaching as well as personality typologies which we might well consider as bases for gathering data about the most productive kind of match. We could use David Ryans'[3] types, those of Louis Heil[4] in his research at Brooklyn, and those devised from various classroom analysis techniques, such as those of Flanders,[5] Hough and Amidon,[6] and others. We have typologies derived from various personality tests. With the large number of students processed through our student teaching situations each year, it would be relatively easy to gather data to determine the extent to which we can predict one kind of match as more productive than another. It will not

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[3]David G. Ryans, *Characteristics of Teachers* (Washington, D.C. American Council on Education, 1950)

[4]Louis Heil, M. Powell and K. Frifer, *Characteristics of Teacher Behavior and Competancy Related to the Achievement of Different Kinds of Children in Several Elementary Grades* (New York: Office of Testing and Research, Brooklyn College, 1900)

[5]Ned A. Flanders, *Teacher Information, Pupil Attitudes & Achievement*, Cooperative Research Monograph No. 12 (Washington, D.C.: U.S. Government Printing Office, 1965)

[6]Edmund J. Amidon and John F. Hough (eds) *Interaction Analysis Theory Research and Application* (Addison Westley Publishing Co., Inc. 1967)

be easy research to design and to interpret, for the interactions of people are a complex result of that brought to the situation, and the situation itself, which may change over the period of student teaching. Thus, there are a number of effects such as school climate which might well contribute to or detract from the effectiveness of a match and which will therefore need to be controlled. But such research is feasible and ought to be undertaken.

Summary

This paper presents four issues which seem to have the potential for fruitful investigation, and which, if studied, could hopefully have substantial impact on teacher education. During World War II, when we were trying to determine how best to retake the European Continent, there were those who suggested that a frontal assault across the English Channel was by far the best approach. By contrast, Winston Churchill suggested that the approach through the Mediterranean would constitute an attack on what he call the "soft underbelly."

In education, we are increasingly trying frontal assaults through programming large amounts of money to attack important problems. Combining such resources with hunches as to where the "soft underbelly" lies, will more likely yield greater payoffs. I'm hopeful that I have been able to outline some of these approaches for you. Let us recapitulate them.

1. It appears that the liberal arts base for teacher education is in need of re-examination. Its content, its organization, and its length are problems that should yield useful answers on careful examination.

2. We need to better understand the complexity of presentation in teaching for cognitive objectives. Preliminary research suggests that there are a variety of principles which would help us to markedly improve our presentation styles, possibly to the point where we would have the same success that we now are able to obtain with programmed instruction. We need to tease out these principles. Development of these principles would have important implications for the teacher's classroom role as well as for teacher training.

3. How do we get better sequencing of the teacher's learning of his task? We can project a three-stage approach to this learning which may provide useful sequencing, but more important, it sug-

gests a set of criteria for the initial and subsequent learning task. We find these criteria are already being met in counselor training and it suggests that there may be a useful analogue here for the student teacher situation.

4. How do we get better learning from student teaching? A particularly critical factor appears to be the improvement of the match between the supervisor and the student. Now done on an intuitive basis, a number of potentially useful typologies appear to be available. Though complicated and involving many social dynamics, it appears feasible.

Many other questions could have been included if there were time. Greater use of individualization of instruction techniques, and better training of teachers in the use of reinforcement techniques are but two of them. Hopefully, the points discussed have been suggestive of other kinds of problems which grow out of your own experience.